

Climate Change Research Program Round 3 Awards

University of California, Los Angeles

Micro-climate Zones: Designing Effective Outdoor Cooling Interventions

Principal Investigator: V. Kelly Turner

\$445,088.05

Partners:

- Kounkuey Design Initiative
- Arizona State University
- Pacoima Beautiful; City of Ontario; City of Los Angeles Housing Authority (Watts Rising)
- Southern California Association of Governments
- Local Government Commission
- Climate Resolve

Research Priority Area(s):

- Supporting and Protecting Vulnerable Communities from the Impacts of Climate Change
- Accelerating and Supporting Transitions to Climate Smart Communities

Crosscutting Thematic Lenses:

- Social Dimensions of Change
- Integrating climate vulnerability/adaptation w/climate-smart approaches

Research Activities:

This project will conduct a comparative analysis of micro-scale cooling strategies in Oasis/Coachella Valley, Ontario/Inland Valley, Pacoima, and Watts/South Los Angeles - four historically disadvantaged communities that are vulnerable to extreme heat. These communities represent a range of climate zones and built environment forms in Southern California. The project will leverage ongoing community engagement and partnerships between UCLA and the Transformative Climate Communities of Ontario, Pacoima, and Watts, and as well as between Kounkuey Design Initiative and the community of Oasis in Riverside County. Through analysis of community-engaged data on the relationship between the micro-scale environment and temperature, researchers will develop design recommendations to help municipalities and communities most cost-effectively mitigate heat at bus stops and other streetscapes. The objective of this project is to empower communities, particularly disadvantaged and heat vulnerable communities, to cost-effectively design cooling solutions for bus stops and other streetscapes that facilitate the use of transit and active transportation, in order to reduce greenhouse gas emissions and local pollution while creating climate-resilient neighborhoods.

Facilitates Greenhouse Gas Emissions Reductions:

Increasing transit ridership and active transportation are critical to reducing GHG emissions, but future extreme heat could make walking and waiting at transit stops less desirable and pose health risks. Little guidance focuses on the street-level, where cities need to act to address heat. This research will result in guidance on how to best design cooling solutions that facilitate GHG emissions reductions from transportation.

Benefits Disadvantaged, Low-Income, and/or Underserved Communities:

Low-income and disadvantaged communities suffer disproportionately from extreme heat and other climate impacts. California communities need help to design the most cost-effective cooling intervention for transit riders, pedestrians, and other residents. This project will empower four disadvantaged communities to help fill this research and guidance gap. For example, community members in East Coachella Valley will inform the design of shade structures at bus stops, and then participate in data collection on temperature reductions based on the installation. Guidance will be produced to benefit other communities on how to minimize costs while maximizing the cooling benefits of shade structures, vegetation, and more.